

## DETAILED ACTION

### *Examiner Notes*

1. Any objections and/or rejections made in the previous action, and not repeated below, are hereby withdrawn.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-15, 18-21, 23, 24, 50-58, 60-63, 65-67, 70 and 78 are rejected under 35 U.S.C. 102(e) as being anticipated by Saavedra et al. U.S. Patent Application Publication No. 2006/0057410 (hereafter referred to as Saavedra) and evidentiary references "Butadiene" Sun, H. N. and Wristers, J. P. 2002. Butadiene. Kirk-Othmer Encyclopedia of Chemical Technology. (hereafter referred to as Sun) , Matweb data

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sheet for Chevron Phillips K-resin® DK11 Styrene Butadiene copolymer and Wolf et al. U.S. Patent No. 6,406,763.

4. Saavedra teaches a multilayer film comprising at least three layers: an inner layer between two skin layers. (Para. 11) The inner layer may comprise cyclic-olefin copolymer. (Para. 11) The skin layers may comprise styrene-butadiene copolymer. (Para. 11) One or two intermediate layers may be disposed between the skin layers and the inner layer. (Para. 27) The intermediate layers may be the same resins or different. (Para. 27)

5. The cyclic olefin copolymers (COC) recited are amorphous, glass-clear copolymers of ethylene and norbornene which provide good stiffness and high clarity such as Topas® COC copolymers. (Para. 24) Topas® 8007 is disclosed to be useful. (Para. 40)

6. The styrene-butadiene copolymers (SBC) disclosed are clear resins known in the art. (Para. 23) The SBC resin provides both high clarity and good film stiffness. (Para. 23) Useful SBC are disclosed to include DK11 and DK13 available from Chevron-Phillips. (Para. 40)

7. Saavedra discloses that film clarity is highly influenced by the skin layers and that for higher clarity embodiments of the inventive film the skin layers preferably comprise SBC or COC. (Para. 30). For retail, high clarity films of the inventive film preferably have a haze value of less than 5% as measured by ASTM D-1003. (Para. 33)

8. The films disclosed may be made by coextrusion. (Para. 36) Layer ratios of the three layer embodiment are disclosed to include 15:70:15. (Para. 41)

9. Regarding claims 1, 50, 61, 62 and 78: Saavedra discloses a multilayer film comprising a COC layer melt bonded (coextruded) directly to two outer skin (outermost) layers comprising SBC wherein the COC is a copolymer of ethylene and norbornene as claimed in claims 1, 50 and 78. The SBC skin layers disclosed by Saavedra are interpreted to be "substantially free of cyclic olefin" as claimed in claim 1 since they are not disclosed to be comprised of cyclic olefin. Wolf et al. U.S. Patent No. 6,406,763 discloses that the SBC DK11 contains about 75 wt% styrene monomer and 25 wt% butadiene monomer. (Col. 14, lines 45-49) Therefore, a laminate comprising SBC DK11 as the skin layers as disclosed by Saavedra anticipates the compositional limitations of the SBC layer recited in claims 1, 50, 61, 62 and 78. Likewise, the COC inner layer of Saavedra is interpreted to be "substantially free of styrene butadiene copolymer" as claimed in claim 1 since it is not disclosed to further comprise SBC. Therefore, Saavedra anticipates all of the limitations of claims 1, 50 and 78.

10. Regarding claim 2: Saavedra does not disclose that halogens are present in the film recited and therefore the film of Saavedra is interpreted to be "substantially free of halogens as claimed in claim 2.

11. Regarding claims 3-6: Saavedra discloses coextrusion of the three layers of the film and therefore the SBC skin layers are extruded simultaneously and in contact with the COC inner layer as claimed in claims 3-6.

12. Regarding claims 7-9: Saavedra discloses that additional intermediate layers comprising the same resin may be present between the skin layers and the inner layer as claimed in claims 7-9.

13. Regarding claim 10: Saavedra is silent regarding whether the styrene butadiene copolymer disclosed "comprises the reaction product of: a styrene monomer and 1,3-butadiene" as claimed in claim 10. However, the examiner takes official notice that it was universally known in the polymer arts that the disclosure of styrene butadiene copolymer means a copolymer that comprises the reaction products of a styrene monomer and 1,3-butadiene as evidenced by "Butadiene" Sun, H. N. and Wristers, J. P. 2002. Butadiene. Kirk-Othmer Encyclopedia of Chemical Technology. (hereafter referred to as Sun) Sun teaches "Butadiene exists in two isomeric forms: 1,3-butadiene and 1,2-butadiene" and that "1,2-butadiene, a small by-product in 1,3-butadiene production, has no significant current commercial interests" (Pg. 1) As such, one of ordinary skill in the art would have immediately envisaged that a generic recitation of butadiene would mean 1,3-butadiene since the only other form butadiene exists in has no commercial interests. Therefore, the SBC of Saavedra comprises styrene and 1,3-butadiene monomers and anticipates the limitations of claim 10.

14. Regarding claims 11-15 and 18-20: The COC of Saavedra comprising ethylene and norbornene anticipates the limitations of claims 11-15 and 18-20.

15. Regarding claim 21: Saavedra discloses that Topas® 8007, the COC resin useful for the invention has a density of  $1.020 \text{ g/cm}^3$ . (Para. 40) Matweb data for DK11 styrene-butadiene copolymer which is disclosed by Saavedra to be a useful SBC for the invention teaches that the density of DK11 is  $1.01 \text{ g/cm}^3$ . (Matweb data sheet) Therefore, a three layer film having skin layers of DK 11 SBC and a core layer of

Topas® 8007 COC resin would have to have a density between 1.01 and 1.02 g/cm<sup>3</sup>.

This density anticipates points within the range claimed in claim 21.

16. Regarding claims 23: The film of Saavedra is made of the same materials as disclosed by applicant and it therefore naturally flows that it would display the same characteristics of WVTR claimed in claim 23.

17. Regarding claim 24: The film of Saavedra has very low haze, is disclosed to have high clarity and is comprised of the same materials as the film claimed by applicant.

"Products of identical chemical composition can not have mutually exclusive properties."

A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990) (MPEP 2112.01 II) Therefore, it naturally flows that the film of Saavedra would display a light transmission value as claimed in claim 24.

18. Regarding claim 51: Saavedra does not disclose that the COC core layer recited comprises any further resins and therefore it is interpreted to "consist essentially of COC" as claimed in claim 51. While it is recognized that the phrase "consisting essentially of" narrows the scope of the claims to the specified elements and those which do not materially affect the basic and novel characteristics of the claimed invention, absent a clear indication of what the basic and novel characteristics are, "consisting essentially of" is construed as equivalent to "comprising". Further, the burden is on the applicant to show that the additional ingredients in the prior art would in

fact be excluded from the claims and that such ingredients would materially change the characteristics of the applicant's invention. See MPEP 2111.03.

19. Regarding claims 52-56: The COC comprising ethylene and norbornene disclosed by Saavedra anticipates the limitations of claims 52-56.

20. Regarding claims 57 and 58: Saavedra discloses that Topas® 8007 is a useful COC for the invention. Applicant's specification discloses that Topas® 8007 is a useful COC for the instantly claimed invention and that this resin contains 36 mol% norbornene with the balance being ethylene. (Pg. 34, lines 28-29) Therefore, the Topas® 8007 COC resin disclosed by Saavedra anticipates the limitations of claims 57 and 58.

21. Regarding claim 60: Saavedra does not disclose that the SBC recited comprises and further monomers and therefore the SBC of Saavedra is interpreted to consist of styrene and butadiene residues as claimed in claim 60.

22. Regarding claim 63: Saavedra discloses that each skin layer comprises 15% of the total laminate thickness. Therefore, the core layer is 4.6 times thicker than the skin layer which anticipates the limitations of claim 63.

23. Regarding claims 66 and 67: Saavedra anticipates the three layer coextruded embodiment claimed in claim 66. The recitation of "lamination" in claim 67 is given little patentable weight and it interpreted to read on coextrusion. Even if the term "lamination" were interpreted to imply that the layers of the laminate were formed separately and then melt bonded together, this limitation would merely be a product by process limitation that fails to provide any structural features which would render the invention

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claimed materially distinguishable from that disclosed in the prior art. Saavedra therefore anticipates the limitations of claim 67.

24. Regarding claim 70: The film of Saavedra is disclosed to have a haze of less than 5% and the SBC and COC disclosed to make the film of Saavedra are disclosed to be particularly advantageous for films requiring high clarity and the materials disclosed by Saavedra are the same as those claimed by applicant. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990) (MPEP 2112.01 II) Therefore, it naturally flows that the film of Saavedra would inherently exhibit a correlated haze as claimed in claim 70 when produced at a thickness as recited in claim 70.

### ***Claim Rejections - 35 USC § 103***

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saavedra et al. WO 2004/024433, U.S. Patent Application Publication No. 2006/0057410 (hereafter referred to as Saavedra) as applied to claims 1 and 50 above in further view of "Radiation Curing" McGinniss, V. D. 2000. Radiation Curing. Kirk-Othmer Encyclopedia of Chemical Technology (hereafter referred to as McGinniss).

27. Saavedra teaches what has been recited above but is silent regarding the COC layer comprising a cross-linker.

28. McGinniss teaches that cross-linked polymer has higher melting points, improved heat resistance and improved chemical resistance than the original thermoplastic polymer. (Pg. 1) Cross-linking of polymeric materials can be facilitated by the use of cross-linking agents such as alkenes. (Pg. 5)

29. McGinniss evidences that it was universally known in the art at the time the invention was made that cross-linking polymeric materials provided improved properties and that cross-linking can be accomplished by the use of cross linking agents such as alkenes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included an alkene cross linking agent in the COC layer of Saavedra in order to increase the melting point, improve the heat resistance and improve the chemical resistance of the film disclosed. This obvious use of a technique well known in the art would have produced the invention claimed in claims 16 and 17.



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30. Claims 22, 25-28, 64, 68 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saavedra et al. WO 2004/024433, U.S. Patent Application Publication No. 2006/0057410 (hereafter referred to as Saavedra) as applied to claims 1 and 50 above.

31. Saavedra teaches what has been recited above but is silent regarding the peel strength between the layers recited and the thickness of the layers of the film.

32. Regarding claims 22, 68 and 69: It would have been obvious to one having ordinary skill in the art at the time the invention was made who desired to prevent peeling of the layers of the laminate disclosed by Saavedra from one another to have disposed an adhesive material between the layers disclosed. It is universally known in the laminate arts to employ polymeric adhesives to increase the bond strength between laminate layers. The use of a universally known technique to increase the adhesion of polymeric layers would have produced the invention as claimed in claims 21, 68 and 69.

33. Regarding claim 25: Saavedra discloses that the film of the invention has a haze of less than 5% which overlaps or encompasses the range claimed in claim 25. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990)

34. Regarding claims 26-28 and 64: Saavedra is silent regarding the thickness of the layers of the film disclosed. However, it has long been an axiom of United States patent law that it is not inventive to discover the optimum or workable ranges of result-effective variables by routine experimentation. *In re Peterson*, 315 F.3d 1325, 1330

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(Fed. Cir. 2003) ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); *In re Boesch*, 617 F.2d 272, 276 (CCPA 1980) ("[D]iscovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art."); *In re Aller*, 220 F.2d 454, 456 (CCPA 1955) ("[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."). "Only if the 'results of optimizing a variable' are 'unexpectedly good' can a patent be obtained for the claimed critical range." *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997) (quoting *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977)).

35. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the layers of the laminate disclosed by Saavedra whatever thickness was desired depending on the application the film was intended to be used for. Obviously, thicker layers are going to be tougher. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized the layer thicknesses of the layers disclosed. This obvious optimization of the thickness of the layers would have produced the same invention as claimed in claims 26-28 and 64.

***Response to Arguments***

36. Applicant's arguments filed 12/2/11 have been fully considered but they are not persuasive.

37. Applicant's arguments on pages 21-23 of the remarks regarding the haze of the embodiments of Saavedra disclosed in Table II of Saavedra are not germane to the instantly pending rejection because these embodiments were not relied upon to anticipate the instantly claimed invention. Additionally, Applicant's assertions regarding unexpected results on pages 21 and 24 of the remarks are not germane to an anticipation rejection. Secondary considerations (i.e. unexpected results) are only relevant to rebut a case of *prima facie* obviousness.

38. Applicant asserts on pages 25 and 26 of the remarks that because Saavedra discloses a list of materials for the skin and core layers of the laminate disclosed and because Saavedra discloses preferred embodiments which do not anticipate the pending claims, Saavedra cannot anticipate the instantly claimed laminate. To further support this contention, applicant cites *Ex Parte Jacques Faguet et al.* which in turn references *In re Arkley*. The examiner has reviewed the copy of the decision for *Ex Parte Jacques Faguet et al.* submitted by applicant 12/2/11, even though applicant failed to properly cite this reference on an IDS, and it is the examiner's position that the fact pattern of *Ex Parte Jacques Faguet et al.* is not relevant to the instantly pending claims. In reversing the anticipation rejection in *Ex Parte Jacques Faguet et al.* the Board of Patent Appeals and Interferences (BPAI) cited *In re Arkley* which states that a

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“reference must clearly and unequivocally disclose the claimed compound or direct those skilled in the art to the compound without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference”. In both *In re Arkley* and *Ex Parte Jacques Faguet et al.* the examiner combined elements of various disclosures *not* directly related to each other by the teachings of the cited reference. In the instant case, only a single element of the disclosure of Saavedra has been relied upon and the materials for the core and skin layers are directly related to one another. No picking and choosing or combining *unrelated disclosures* was performed.

39. The examiner believes that the fact pattern of *In re Petering* 301 F.2d 676, 133 USPQ 275 (CCPA 1962) is more relevant to the instantly pending rejection as it deals with anticipation in light of related disclosures within a single reference. As stated in MPEP 2131.02 “In *In re Petering*, the prior art disclosed a generic chemical formula “wherein X, Y, Z, P, and R' represent either hydrogen or alkyl radicals, R a side chain containing an OH group.” The court held that this formula, without more, could not anticipate a claim to 7-methyl-9-[d, l'-ribityl]-isoalloxazine because the generic formula encompassed a vast number and perhaps even an infinite number of compounds. However, the reference also disclosed preferred substituents for X, Y, Z, >P,< R, and R' as follows: where X, P, and R' are hydrogen, where Y and Z may be hydrogen or methyl, and where R is one of eight specific isoalloxazines. The court determined that this more limited generic class consisted of about 20 compounds. The limited number of compounds covered by the preferred formula in combination with the fact that the

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number of substituents was low at each site, the ring positions were limited, and there was a large unchanging structural nucleus, resulted in a finding that the reference sufficiently described "each of the various permutations here involved as fully as if he had drawn each structural formula or had written each name." The claimed compound was 1 of these 20 compounds. Therefore, the reference "described" the claimed compound and the reference anticipated the claims".

40. In the instant case, the laminate having a core and skin layers disclosed by Saavedra is considerably less complicated than a chemical composition which is disclosed to have 6 different types of substituents. Just as in *In re Petering*, the instantly cited art discloses a preferred list of materials for one of the components in Claim 28 which discloses 3 preferred materials for the skin layers: polystyrene, SBS and COC. Therefore, in the instant case there are merely 30 different embodiments of 3 layer laminate of Saavedra reasonably disclosed. Given the limited number of structures covered by the preferred embodiment of Saavedra in combination with the low number of substituents for the core and skin layers and the extreme simplicity of the three layer laminate disclosed by Saavedra the examiner believes Saavedra has been reasonably interpreted by the examiner to unequivocally describe the embodiment comprising SBC skin layers and a COC core layer as fully as if it had been drawn or each layer name had been written.

41. Applicant's argument on page 27 of the remarks regarding the citation from *KSR* is immaterial since the instantly pending rejection is based on anticipation whereas *KSR* is concerned with obviousness. Nevertheless, even, *in arguendo*, this argument were

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relevant, the instantly pending rejection does not merely demonstrate that the individual elements claimed were independently known in the prior art. Instead, Saavedra clearly demonstrates that the elements claimed were known to be **useful together** in forming laminates having core and skin layers as instantly claimed. Therefore, this assertion is not found persuasive.

42. Applicant's request for rejoinder of the withdrawn claims is not found persuasive since as enumerated above, Saavedra anticipates the corresponding special technical feature shared between the pending claims and therefore the groups set forth by the examiner in the restriction requirement dated 12/28/10 do not have unity of invention.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michele L. Jacobson whose telephone number is (571)272-8905. The examiner can normally be reached on Monday-Thursday 8:30 AM-6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571)272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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